Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	GN Docket No. 17-258
Promoting Investment in the 3550-3700 MHz Band	)	

COMMENTS OF CANTOR TELECOM SERVICES, L.P. IN RESPONSE TO NOTICE OF PROPOSED RULEMAKING

December 28, 2017

Andrew D. Lipman
Denise S. Wood
Catherine Kuersten
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Ave, NW
Washington, DC 20004
(202) 739-3000
(202) 739-3001 (Fax)

Counsel to Cantor Telecom Services, L.P.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Cantor Telecom strongly supports retention of existing rules which were promulgated in 2015 following an extensive notice and comment period and which balanced the interests of all interested stakeholders.

Cantor Telecom urges the Commission to retain census tract-based geographic license areas and shorter license terms to promote greater access to CBRS priority access licenses, to reduce the risk of warehousing rights to protected spectrum, and to ensure that parties who have already dedicated valuable resources in reliance on the Commission's 2015 Report & Order can realize their investment. Larger geographic license areas and longer terms would likely stifle innovation and foreclose participation by smaller entities as a result of the higher cost of licensing fees. Smaller license areas and shorter terms also promote flexibility, fungibility and liquidity in the secondary market, encouraging efficient use of valuable spectrum resources. Cantor Telecom cautions that partitioning and disaggregation should not be viewed as a substitute for smaller initial geographic license areas but supports further partitioning and disaggregation in secondary market transactions to improve spectral efficiency and facilitate targeted network deployments.

Cantor Telecom is well positioned to support the Commission's CBRS auction and facilitate aftermarket transactions for 3.5 GHz use rights given its experience in maintaining a low-friction and pervasive marketplace for U.S. Government securities as well as one of the world's largest trading platforms for government and corporate securities, and history of leadership in the development and operation of innovative electronic exchanges.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	GN Docket No. 17-258
Promoting Investment in the	)	
3550-3700 MHz Band	)	

COMMENTS OF CANTOR TELECOM SERVICES, L.P.
IN RESPONSE TO NOTICE OF PROPOSED RULEMAKING

Cantor Telecom Services, L.P. ("Cantor Telecom") hereby submits these comments in response to the Federal Communications Commission ("FCC" or "Commission") Notice of Proposed Rulemaking ("NPRM"), released October 24, 2017, which seeks comment on and proposes changes to rules governing Priority Access Licenses ("PALs") utilizing the Citizens Broadband Radio Service ("CBRS") in the 3550-3700 band (3.5 GHz Band).[1] Cantor Telecom strongly supports retention of existing rules which were promulgated in 2015 following an extensive notice and comment period and which balanced the interests of all interested stakeholders.[2] However, to the extent the Commission opts to change the existing rules, Cantor urges the Commission to exercise extreme discretion to ensure that future rules facilitate efficient deployment of spectrum through use of a vibrant secondary market.

---

1 *In the Matter of Promoting Investment in the 3550-3750 MHz Band*, Further Notice of Proposed Rulemaking and Order Terminating Petitions, Docket No. GN 17-258, FCC 17-34 (rel. Oct. 24, 2017) ("2017 NPRM").

2 *See In the Matter of Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-2650 MHz Band*, Report and Order and Second Further Notice of Proposed Rulemaking, Docket No. GN 12-354, 30 FCC Rcd 3959 (2015) ("*2015 R&O*").

I. BACKGROUND

Cantor Telecom is a subsidiary of Cantor Fitzgerald, L.P. ("Cantor Fitzgerald") (collectively, "Cantor"), the holding company for a diversified organization, including financial services such as investment banking and securities brokerage, and real estate services and real estate financing operating in the global financial and commercial real estate markets, which has been in operation since 1945. As one of the last private partnerships operating on Wall Street, Cantor Fitzgerald has utilized its extensive experience and innovation as a computer-based bond brokerage to become a global premier financial services firm. Cantor Fitzgerald and its affiliates have approximately 12,000 employees in 20 countries including major financial hubs worldwide.

By way of additional background, Cantor Fitzgerald acts as one of only 22 Primary Dealers authorized to trade directly with the United States Federal Reserve. The Federal Reserve Act specifies that the Federal Reserve may buy and sell Treasury securities only in the "open market." As such, the Federal Reserve conducts purchases and sales of securities chiefly through transactions Primary Dealers to "support the independence of the central bank in the conduct of monetary policy."[3] Among its responsibilities as a primary dealer, Cantor is required to meet stringent liquidity and quality requirements and must provide ongoing insight into market developments in its daily market monitoring activities to support the formulation and implementation of monetary policy.[4]

For decades, Cantor Fitzgerald has been a market leader in the most efficient and

---

[3] *See* Federal Reserve Bank of New York, FAQs, https://www.federalreserve.gov/faqs/money_12851.htm.

[4] *See* Federal Reserve Bank of New York, Primary Dealers, https://www.newyorkfed.org/markets/primarydealers.

cost-effective trading methods, providing expertise in a variety of areas, including the equity and fixed income capital markets, commercial real estate brokerage and finance, prime brokerage, gaming technology, insurance products and others. Cantor Fitzgerald and its affiliates conduct more than $150 trillion of notional volume in financial transactions for customers annually.

Cantor Fitzgerald has a long history of leadership in the development and operation of innovative electronic exchanges and Cantor Telecom has participated in a number of rulemaking proceedings pertaining to spectrum issues. Cantor Fitzgerald's electronic trading platforms enable participants to transact business online instantaneously and can be rapidly customized with auction and reverse auction capabilities, inquiry-based functions, real-time distribution and transaction capabilities which can operate on a secure, high-speed private network or over the public Internet. Cantor Fitzgerald has long been at the forefront of electronic exchange innovation and recently divested one such platform facilitating trading in several forward U.S. Treasury security markets to NASDAQ.[5]

Cantor has long supported the efforts of the FCC, Ofcom, and other regulatory bodies to allow spectrum trading in secondary markets.[6] As discussed in prior filings, Cantor Telecom envisions a spectrum exchange as a tool under the government's supervision that can be used to balance resource availability and transparency, while preserving classified information to maximize public utility and government revenues.[7]

---

5 *See generally* http://www.cantor.com/.

6 *See, e.g., In the Matter of Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Report and Order and Second Further Notice of Proposed Rulemaking, Docket No. WT 12-354, Comments of Cantor Telecom Services L.P. (filed Jul. 15, 2015).

7 *See, e.g, In the Matter of Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Docket No. WT 12-354, Ex Parte Comments of Cantor Fitzgerald Telecom Services, LLC, FCC 12-148 (filed July 31, 2013); Ex Parte Comments of Cantor Fitzgerald

Innovative services are more likely to be developed in regions where spectrum can be rapidly obtained or offered, price discovery and valuation agreed upon, and execution completed with minimal time and friction.

Cantor is well positioned to offer originally and support aftermarket transactions for 3.5 GHz use rights given its experience in maintaining a low-friction and pervasive marketplace for U.S. Government securities as well as one of the world's largest trading platforms for government and corporate securities, generally. As a broker or intermediary, Cantor Telecom would facilitate market transactions and reduce transactional friction in order to make markets more efficient.

Cantor was responsible for the development of an early electronic-bidding platform to sell loans and financial instruments and currently runs a number of exchanges, including traditional foreign exchanges such as CXMarkets, which facilitates foreign currency exchange, and has recently self-certified a bitcoin exchange with the Commodity Futures Trading Commission.[8] In addition, Cantor has successfully created and operated exchanges outside of the financial context, for example, TradeWX, which offers digital weather contracts.[9]

Cantor Telecom has been actively engaged in CBRS-related issues since the release of the 3.5 GHz NPRM in 2012.[10] Cantor Telecom would work with Spectrum Access System ("SAS") providers to specifically develop a spectrum exchange to facilitate

---

Telecom Services, LLC (filed Mar. 13, 2014); Comments of Cantor Fitzgerald Telecom Services, LLC (filed July 14, 2014) ("Cantor Telecom Comments").

8 *See* www.cantorexchange.com.

9 *Id.*

10 *See In the Matter of Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Docket No. WT 12-354, Notice of Proposed Rulemaking, 27 FCC Rcd 15594 (2012).

secondary market transactions of 3.5 GHz PAL spectrum. The adoption and use of a spectrum exchange through which PAL users could trade and acquire spectrum based upon their needs at any given time would provide significant benefits and efficiencies, including enhanced price discovery, transparency, paperwork and cost efficiencies, improved access to available spectrum and a significant increase in the liquidity of the spectrum. Shorter license terms and census tract-based geographic areas, along with a robust secondary market and accessible spectrum exchange, promote greater flexibility and motivate users to prevent valuable spectrum resources from lying fallow.

II. SHORTER INITIAL LICENSE TERMS ARE NECESSARY TO PROMOTE ECONOMIC USE OF SPECTRUM

Under the Commission's current rules as promulgated in the First Report and Order ("2015 R&O"), PALs have a three-year nonrenewable license term, terminating automatically at the end of the term.[11] However, applicants may apply for two consecutive three-year terms during the initial application window.[12] The Commission now proposes to increase the license term from three to ten years and eliminate automatic termination.[13] Cantor Telecom urges the Commission to ensure that a three-year license term remains available, as shorter license terms "promote flexibility, fungibility and liquidity in the secondary market."[14] Longer license terms would make the market less fluid and dynamic and potentially result in large swaths of spectrum lying fallow for extended periods of time during which another user could make productive use of the license.

---

11 *See 2015 R&O*, 30 FCC Rcd at 4086-87, ¶ 434; *see also* 47 C.F.R. Part 96.

12 *Id.*

13 *2017 NPRM* at ¶ 13.

14 *2015 R&O* at ¶ 102.

A. A Shorter Initial License Term Would Enable a Robust Secondary Market

The Commission has previously recognized that three-year non-renewable license terms balance flexibility and certainty while furthering the Commission's goal of promoting "more efficient wireless network architectures and innovative approaches to spectrum management."[15] The Commission's now rationalizes the imposition of longer license terms because licensees will be provided with more time to engineer and deploy devices across the license area.[16] However, this purported advantage does not negate the multitude of benefits a three-year license term would provide licensees, including but not limited to increased access to and efficient utilization of spectrum, as well as realization of existing investments into the 3.5 GHz band.

Furthermore, the flexibility of a longer term license does not offset the impact of excluding innovators from utilizing spectrum at all. The Commission acknowledges that the proposed revisions may "create disincentives to PAL deployments for at least some segment of the industry and increase the risk of stranded investment."[17] In fact, many entities who would otherwise participate in the PAL auction – and who have likely invested resources already in anticipation of obtaining 3.5 GHz spectrum – would be foreclosed from participation as a result of the higher cost of licensing fees associated with longer terms. As parties such as Google have noted, the proposed rules would result in a higher, oftentimes prohibitive, initial cost of PAL licenses.[18]

---

15 *2015 R&O,* 30 FCC Rcd at 3995-96, ¶ 106-7.

16 *2017 NPRM* at ¶ 13.

17 *Id.*

18 *See In the Matter of Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Docket No. WT 12-354, Comments of Google Inc. and Alphabet

B. Extended License Terms Could Adversely Impact Rural Areas

The Commission also seeks comment on how longer, renewable license terms could affect rural deployment.[19] In addition to reducing fungibility and liquidity necessary for a robust secondary market, an extended license term, in particular coupled with larger geographic license areas, could negatively impact rural deployments by precluding market entry for smaller service providers with niche rural markets that require lower costs of entry and would encourage larger providers with greater resources to stockpile and warehouse spectrum, as many commenters have noted.[20]

III. INCREASING THE GEOGRAPHIC LICENSE AREA FOR EACH PAL WOULD FORECLOSE SMALLER ENTITIES FROM PARTICIPATION

The 2015 R&O defined the geographic license area for each PAL as one census tract in order to allow PAL applicants to "target specific geographic areas in which they need additional coverage and avoid applying for areas that they do not intend to serve."[21] Some commenters have contended that this licensing scheme, which could result in over 500,000 PALs in more than 70,000 geographic areas,[22] may pose challenges for SAS administrators, the Commission, and licensees.[23] In response, the Commission now proposes to increase the geographic licensing area of each PAL.[24]

Cantor Telecom urges the Commission to retain census tracts to promote greater

---

Access in Response to Petitions for Rulemaking, Docket No. WT 12-354 (filed Jul. 24, 2017) ("Google Comments") at pp. 18-19.

19 *2017 NPRM* at ¶ 15.

20 *2017 NPRM* at ¶ 12, n. 34.

21 *2015 R&O*, 30 FCC Rcd at 3990, ¶ 94.

22 96 C.F.R. § 96.3.

23 *2017 NPRM* at ¶ 20.

24 *2017 NPRM* at ¶¶ 23-27.

access to the licenses, to reduce the risk of warehousing rights to protected spectrum, and to ensure that parties who dedicated valuable resources in reliance on the 2015 R&O can realize their investment. Cantor Telecom disagrees that the resultant number of PALs under a census tract geographic licensing scheme would be unwieldy. Potential SAS Administrators such as Google and Sony have repeatedly informed the Commission that the scheme poses "no undue burden," noting that, in addition to the meaningful advances in technology to support managing licenses across many geographic areas, "the size of the PAL license area has essentially no effect on the complexity of PAL protections."[25] In addition, as Google has noted, licensees who are large enough to offer service across large numbers of census tracts "will already necessarily have internal systems in place to manage their expansive spectrum holdings."[26]

Cantor Telecom agrees with commenters, including WISPs, who point out that larger geographic PAL units such as PEAs, in combination to other potential changes to the PAL licensing rules, would result in prohibitive license costs that only a handful of large companies would be able to feasibly afford.[27] A substantial number of companies

---

[25] *See 2017 NPRM* at ¶ 21; *In the Matter of Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Docket No. WT 12-354, *Ex Parte* Letter to Marlene H. Dortch, Secretary, Federal Communications Commission from the Sony Corporation (filed Jul. 21, 2017); Google Comments at pp. 24-25.

[26] For example, Sprint and its Clearwire subsidiary already hold over 30,000 active FCC licenses. Google Comments at 24 (citing Federal Communications Commission, FCC License View, http://reboot.fcc.gov/licenseview/) (last visited July 24, 2017).

[27] *See, e.g.*, *See In the Matter of Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Docket No. WT 12-354, Reply Comments of Vivint Wireless (filed Aug. 8, 2017) ("[E]nlarging the geographic license area for PALs, whether to Partial Economic Areas ("PEAs") or to a county-based scheme, would result in inefficient spectrum use and an unnecessary barrier to entry for new service providers given that national cellular carriers would likely capture most of the larger and commensurately costlier geographic licenses."); Comments of the Wireless Internet Service Providers Association (filed Jul. 24, 2017) ("[R]equiring PALs to be auctioned by PEAs will exponentially increase the geographic area and population of auctioned spectrum, dramatically increase the cost of PALs, and assuredly foreclose participation by smaller providers that have a desire to serve smaller areas and lack

who could otherwise promote broadband access in smaller geographic areas would be entirely foreclosed from participating in the auction at all.

Moreover, many of the entities who would be foreclosed from participation in the PAL auction have already undertaken significant financial action in reliance on the 2015 R&O, including millions of dollars invested in base stations and CPE that can only operate in 3650-3700 MHz.[28] A financial loss of this magnitude for small WISPs would hinder competitive providers from attracting private capital that would be utilized to support rural connectivity.[29] Permitting PALs to obtain licenses in smaller geographical areas such as census tracts would facilitate the Commission's goals to "allow flexible and targeted network deployments, promoting intensive and efficient use of the spectrum, but also allow[] easy aggregation to accommodate a larger network footprint."[30]

IV. DISAGGREGATION AND PARTITIONING OF LICENSES WOULD ENHANCE LIQUIDITY IN THE SECONDARY MARKET

The Commission previously prohibited PAL licensees from partitioning and disaggregation of licenses on the basis that "reasons for permitting partitioning and disaggregation in more traditionally licensed bands were not present in the 3.5 GHz Band."[31] The Commission now proposes to allow partitioning and disaggregation of PALs in secondary market transactions.

---

the ability to bid against TMobile and its multi-billion dollar mobile wireless competitors for areas that far exceed the size of smaller, targeted areas.").

28 *In the Matter of Promoting Investment in the 3550-3750 MHz Band*, Further Notice of Proposed Rulemaking and Order Terminating Petitions, Docket No. GN 17-258, *Ex Parte* Letter to Marlene H. Dortch, Secretary, Federal Communications Commission from the Wireless Internet Service Providers Association (filed Dec. 6, 2017).

29 *Id.*

30 *2015 R&O*, 30 FCC Rcd at 3991, ¶ 96.

31 *2017 NPRM* at ¶ 28.

As a threshold matter, partitioning and disaggregation should not be viewed as a substitute for smaller geographic license areas, which encourages "efficient and intensive" use of the 3.5 GHz spectrum which promotes "an equitable distribution of licenses and services among geographic areas" and "economic opportunity for a wide variety of applications," as the Commission suggests.[32] Large geographic license areas encourage spectrum warehousing and higher costs for such licenses act as barriers to market entry for smaller companies, and as a result, stifle innovation.

As discussed in previous comments, allowing partitioning and disaggregation in secondary market transactions would "improve spectral efficiency and facilitate targeted network deployments."[33] The Commission should permit disaggregation and partitioning, as unlike GAA users, PAL users are often required to meet stringent quality of service requirements for commercial services. Dynamic disaggregation and partitioning of licenses in terms of geography, duration or bandwidth enhances liquidity and improves demand and value of the spectrum on the secondary market, thus allowing the market to work freely to secure meaningful use and interference protection rights. This encourages innovation and capital investment in the 3.5 GHz band and furthers the Commission's goal of facilitating efficient use of spectrum.

Furthermore, permitting partitioning and disaggregation would not cause significant administrative burden for a spectrum exchange. For example, a spectrum exchange could incorporate geolocation database technology that operates in near real-time, and can rapidly and dynamically disaggregate and partition spectrum in much smaller

---

32 *2017 NPRM* at ¶ 24.

33 Cantor Telecom Comments at 8; *2017 NPRM* at ¶ 31.

increments than even a census block.[34]

V. PAL AUCTION RULES SHOULD ENCOURAGE SECONDARY MARKET TRANSACTIONS THROUGH A SPECTRUM EXCHANGE

A. Eliminating the Rules Limiting the Number of Available PALs Would Enhance a Vibrant Secondary Market

The Commission proposes to revise a number of rules relating to assignment of PALs, including those that currently limit the number of PALs made available at auction, thereby allowing for assignment of PALs even when there is only one qualified applicant in a given license area.[35] Cantor supports this proposal allowing users to obtain PAL use rights, even when there is only one applicant in a given license area, assuming the applicant is otherwise qualified. Cantor also proposes that any PAL spectrum that is unclaimed during an initial auction window should not automatically revert to GAA use and could still be acquired in the secondary market as a PAL to ensure continued access to exclusive usage rights. A vibrant secondary market requires maximum flexibility and should permit PAL users to gain access to additional spectrum as future needs arise between auction windows.

B. Permitting PAL Licensees to Bid on a Specific Channel Assignment Would Likely Not Impact Secondary Market Transactions

Under the current CBRS licensing regime, SAS administrators assign frequencies to PAL users without guarantee that licensees will receive specific channels or frequency

---

[34] *See, e.g.,* Neil Doherty and Hal Singer, *The Benefits of a Secondary Market for Life Insurance Policies,* at 13 (Oct. 14, 2002), *available at* http://apps.americanbar.org/dch/thedl.cfm?filename=/RP590000/sitesofinterest_files/WhartonBenefitsofASecondaryLifeInsMkt.pdf. This innovative electronic communications network ("ECN") technology provides "market makers with the ability to quote prices in increments finer than the minimum quotation increment," offering "markedly faster order execution than do traditional exchanges." *Id.*

[35] *2017 NPRM* at ¶ 42.

ranges.[36] The Commission seeks comment on the feasibility and desirability of allowing PAL licensees to bid on specific channel assignments.[37] While permitting applicants to bid on specific channel assignments might allow licensees to seek spectrum blocks more tailored to their particular needs, given that PAL use rights are subordinate to protected incumbents, it would, in practice, be difficult to guarantee a particular channel assignment, should a licensee be required to move to avoid interference with an incumbent. Dynamic frequency assignment has heretofore been considered as a core characteristic of the CBRS framework to "to maximize the utility of the 3.5 GHz Band for broadband use, provide dedicated access for authorized priority users at critical use facilities, and protect the vital services currently provided by incumbent federal and non-federal systems operating in the band."[38] However, Cantor Telecom does not foresee that channel assignments or selection of specific channels would present technical or regulatory issues vis-à-vis a spectrum exchange and secondary market transactions.

VI. CANTOR IS ALSO WELL SUITED TO SUPPORT THE COMMISSION IN A SUCCESSFUL CBRS AUCTION

Finally, the Commission seeks comment in a number of instances throughout the NPRM on recommended adjustments to the CBRS auction process and mechanism.[39] Cantor Telecom understands that the Commission's resources may be limited in terms of being able to handle an auction of this level of complexity and magnitude, should licenses be distributed at the census tract level. This alone, however, should not derail the

---

36 47 C.F.R. § 96.59(b).

37 *2017 NPRM* at ¶ 49.

38 *2012 NPRM*, 27 FCC Rcd at 15612, ¶ 50.

39 *See, e.g., 2017 NPRM* at ¶ 49.

Commission from adopting an approach that facilitates the most efficient use of this finite and valuable resource. Cantor Fitzgerald's work on behalf of the United States Federal Government concerning spectrum monetization began in the 1990s as the FCC prepared to launch the PCS auctions. Cantor's electronic auction systems have been routinely adapted for different uses in the company's various operating divisions, and can be tailored to accommodate the initial and any subsequent PAL auctions, regardless of number of licenses or geographic area. In conjunction with Tradewinds International, Inc., Cantor Fitzgerald Securities, Inc. conducted the first narrowband PCS (900) MHz auction in July 1994, which resulted in net bids exceeding $600 million.[40] Cantor was specifically contracted to develop the software for the auction, building off of its existing software utilized in the bond industry. Cantor is well-equipped to support the Commission in running a successful CBRS auction and would be pleased to further discuss particular details with respect to design and implementation.

* * *

[40] *See* Public Notice, Auction Notice and Filing Requirements for Ten Nationwide Licenses for Personal Communications Services in the 900 MHz Band, Report No. AUC-94-01, Auction No. 1 (May 23, 1994).

VIII. CONCLUSION

For the foregoing reasons, Cantor Telecom urges the Commission to retain the rules as adopted after an extensive notice and comment proceeding in 2015, with shorter terms and smaller license areas to increase liquidity and efficient use of spectrum through a robust secondary market.

Respectfully submitted,

/s/

Andrew D. Lipman
Denise S. Wood
Catherine Kuersten
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Ave, NW
Washington, DC 20004
(202) 739-3000
(202) 739-3001 (Fax)

Counsel to Cantor Telecom Services, L.P.

Dated: December 28, 2017